

THEORETICAL PERSPECTIVE FOR COMPENSATION DESIGN AND EXECUTIVE RISK TAKING

JI-YOUNG AHN

Ewha Womans University, Ewha School of Business, Seoul, Korea

ABSTRACT

The main purpose of this paper is to examine how the construction of compensation schemes influence executives' risk taking. This study contribute to the literature by focusing on the understanding the process of executive risk taking in the decision context. Moreover, the paper is aiming at explaining both under-and overinvestment problem in organizations. By focusing on manager's behavioral biases under different contexts as theory suggests, this paper shows how these biases, in leading managers to believe their firms are in gain or loss situations, encourage under- and overinvestment in risky projects.

KEYWORDS: Compensation Design, Executive Risk Taking, Behavioral Decision Theory

I. INTRODUCTION

This study examines how the construction of compensation schemes influence executives' risk taking. A growing body of research recognizes the importance of compensation in influencing employee attitudes and behavior (Tosi & Gomez-Mejia, 1989). For example, studies have much focused on how pay level relates to employee attitudes and behaviors (Tosi & Gomez-Mejia, 1989). However, most of the practitioner and academic literature on compensation does not devote much effort to understanding *how* different compensation design affects employee risk-taking behavior or decisions (Beatty & Zajac, 1994; Zajac & Westphal, 1995).

Executive compensation is not present in a vacuum. Compensation design and its effects on executive behavior, particularly risk-taking behavior occurs within a multifaceted context. While a large number of studies have examined "macro-level" variables of the firm's strategy, industry, and more broadly the culture in which it operates, little attention has been paid to "micro-level" variable in the decision context surrounding the individual choices facing executives have not received adequate attention to compensation research (Gomez-Mejia, 1994). For example, contextual factors that have been much researched first include strategic context which defines organizational goals, the firm's resource availability, and the strategies for matching resources to goal achievement (Asch, Quandt, 1990). The other contextual factor is the external environment which includes industry characteristics as well as economic, cultural, and political factors (Gomez-Mejia, 1994). In this regard, the goal of this study is to fill the gap in the literature by investigating the decision context that may influence executive risk taking behavior.

Moreover, there has been gaining the importance of executives' risk taking behavior in the decision context from the public attention as well as in academia in more recent years. A stylized fact has been established from the business press as well as in the field of finance. Bowman's paradox states that "troubled companies take more risk". Anecdotal evidence shows that in distressed firms, executives are likely to take excessive risk that causes an overinvestment in high

risk, and possibly value destroying projects. By contrast, there also exists the opposite type of managerial behavior. That is, executives tend to make relatively conservative decision making when firm is doing well. Managers are expected to display their risk-aversion. As a consequence, executives may pass up valuable positive NPV, but high risk projects this causes an underinvestment problem for the shareholders who bear the opportunity cost of passing up (Milgrom and Roberts, 1992). This paper first endeavors to explain both under- and overinvestment problem from the behavioral decision framework which has been less attempted to explain both problems. The theory suggests that managers have behavioral biases under different contexts and shows how these biases, in leading managers to believe their firms are in gain or loss situations, encourage under- and overinvestment in risky projects.

Finally, this paper explores the possibility that compensation schemes may reduce both under- and overinvestment problem in decision-making by ensuring positive NPV projects are undertaken in different decision contexts. An appropriately and cautiously designed mixture of fixed and performance-related variable compensation may alleviate concerns but also mitigate both under- and overinvestment problems. I believe that the behavioral insights might provide opportunities for expanding the understanding of compensation effects on executive risk-taking behavior.

II. LITERATURE REVIEW AND PROPOSITIONS

This section begins by introducing behavioral decision theory describing behavioral biases and attempts to explain how these biases encourage under- and overinvestment in taking risky projects. Later, I explore designing of compensation as control system in the way of alleviating both problems by changing perceived risk to executive wealth and, ultimately influence executive risk taking behavior.

Much of conceptual and empirical study of individual's risk-taking behavior is based on behavioral decision theory and, in particular, prospect theory (Kahneman & Tversky, 1979, 1986; Thaler & Johnson; 1990; Sitkin & Pablo, 1992). The model suggests that individual's value changes in economic states, such as wealth or performance, not just levels. The decision context refers to the framing of problems facing a decision maker. Those behavioral models of decisions recognize that the framing of decisions as either positive or negative affects decision makers' perceptions of the problem and, ultimately their preferences, and risk-taking behavior.

The key insight from the behavioral decision model is that risk preferences of decision makers and, thus, their risk-taking behavior change with the framing of problems (Kahneman & Tversky, 1979, 1986; Sitkin & Weingart, 1995). The theory was introduced by attacking the traditional agency arguments that incorporate fixed assumptions of risk preferences (i.e., risk-averse). Behavioral theorists criticized that under the agency theory, we hardly explore either the causes of risk preferences or alternative preferences (e.g., risk seeking or loving behavior) outside that determined by the contract (Sitkin & Pablo, 1992; Gomez-Mejia & Wiseman, 1998). Kahneman and Tversky (1979) found in a laboratory study that the risk propensity of a decision maker varies with the framing of the problem. When choices are framed as gains where both options have equal positive expected values but different risks, decision makers generally exhibit risk aversion by choosing the option with the lower risk with lower expected value. When choices are framed as losses where both options have negative expected values and different risks, decision makers generally exhibit risk seeking by selecting the higher risk option where the risk is not completely compensated (Kahneman & Tversky, 1979).

More specifically, theorists frame problems by comparing expected outcomes from available or alternative options against a reference point. Positively framed problems may occur when alternative options of varying risk and

return largely promise increasing expected values. In contrast, problems are negative framed when available options available options promise unacceptable expected values. Scholars tend to use current wealth (cf., Kahneman & Tversky, 1979) or executive aspirations (cf., March & Shapira, 1992) as the reference points for framing as gain or loss. The model first predict that decision makers exhibit risk-averse preferences when positively framed prospects and exhibit risk-seeking preferences when selecting among negatively framed prospects (Kahneman & Tversky, 1979). The concept of “loss aversion” is emphasized. Loss aversion concerns the avoidance of loss, even if this means accepting higher risk (Tversky & Khaneman, 1986). Thus, loss averse decision makers are more sensitive to losing wealth than to increasing wealth (Tversky & Khaneman, 1986). Hence, loss aversion explains a preference for less risky options to merely minimize the loss to expected loss altogether (Thaler & Johnson, 1990).

In a similar vein, “Behavioral Theory of the Firm” building on Cyert and March (1992) also has argued that problem framing derives choice behavior. In a hunger-driven search perspective, they argue that decision makers use a “success” referent to judge the quality of their performance, and suggest that when facing insolvency, decision makers substitute a “failure” referent. In particular, decision makers compare their performance to the success referent that distinguishes between doing well and not doing well. When performance is above the success referent, decision makers continue with the status quo, and when performance is below this referent, decision makers engage in a search for ways to improve performance. (Hammond, Keeney, and Raiffa, 1998).

Sitkin and her colleagues (Sitkin & Pablo, 1990; Sitkin & Weingart, 1995) have investigated a work that incorporates the process of decision making. They particularly focus on framing effects in decision process. For example, Sitkin & Pablo (1990) argue that problem framing (as either losses or gains relative to some referent of performance) may influence perception of risk such that gain situations increase perceived risk to individual wealth since the person has something to lose, while the situations of loss lower perceived risk to wealth since it is already lost and, thus, the decision maker has nothing to lose. Later, Sitkin and Weingard (1995) find that risk perception fully mediates the influence of risk propensity on risk choices. This suggests that perceived risk plays a central role in determining observed risk preferences. Later, Wiseman and Gomez-Mejia (1998) extend Stikin and her colleagues’ work to compensation research by suggesting that problem framing, whether agents expect to exceed or fall short of goals may influence risk perception to individual wealth beyond that created by the compensation contract.

Taken together, behavioral decision theory may provide a feasible explanation of aforementioned under-and overinvestment problem resulted from executives’ behavioral biases. That is, a gain situation increases perceived risk to executive wealth since the executive has something to lose and thus, in turn is more likely to exhibit risk averse behavior and pursue the low-risk and low-return project at the sake of firm’s profitability. On the other hand, loss situations decrease risk perception since the executive has nothing to lose, and thus, they are more likely to be risk-seeking and take excessive negative NPV projects that may endanger the firm’s fate.

1.1 Determinants of Problem Framing

What determines the problem framing that influences the tendency of a decision maker (executive) to either take or to avoid risks? Past researches appear to exclusively focus on one determinant of decision-maker referent: firm performance history. In addition to this, I will also explore the possibility of peer group performance (compensation) as a determinant that influences the performance referent building on social comparison theory (Salancik and Pfeffer, 1978).

The role of performance history is markedly present in models of risk behavior. Behavioral decision theorists generally suggest that the performance history such as past and current performance may influence risk perception and, ultimately, risk taking through its effect on the reference point used in framing problems (e.g. Bromiley, 1991). For example, Osborn & Jackson (1988) and Thaler & Johnson (1990) found that decision makers will seek risks in gain situations if prior risk-seeking actions were successful. The same logic of reinforcement can be applied in the sense that to the extent that decision makers can associate outcomes with their actions, successful risk-averse decision makers will become increasingly risk-averse. March (1988:12) has made an analogous argument with respect to organizations. “Organizations that are persistently successful tend to become fixated on one strategy or another, independent of their comparative values. Organizations that are persistently unsuccessful tend to keep shifting strategies” That is, success outcome is likely to increase the probability of gain context. More recently, building on previous research, Wiseman & Gomez-Mejia (1998) propose a dynamic relation between risk and prior performance so that “rising performance should raise the reference point used in framing a problem as gain or loss and, consequently, decrease the probability of gain context” (pp. 138).

Overall, prior studies largely suggest 1) rising performance over time is more likely to increase the probability of gain context and therefore to fixate the status quo. On the other hand, declining performance is likely to increase the probability of loss context and therefore to switch the status quo. Moreover, in the context of decision process, Sitkin & Pablo (1992) attempt to integrate the risk perception as mediator explaining problem framing by arguing that “Positively framed situations will be perceived as involving higher risk than is normatively appropriate risk, whereas negatively framed situations will be perceived a lower level of risk than normatively appropriate.” (pp.1992)

Peer Group Performance/Compensation. Not only individual’s own information such as his/her own firm’s performance history, but he/she often relies on the information they gather from others (O’Reilly, Main & Crystal, 1988). Salancik and Pfeffer (1978) proposed that social information processing was the root mechanism by which organizations and organizational members come to influence the perceptions, the beliefs, and ultimately the actions of individuals. Along the similar line, social comparison theory (O’Reilly, Main & Crystal, 1988) provides a criterion for explaining social referent point for individuals. Specifically, it suggests that the performance of selected peers may play a role in setting the referent point of target firm performance as well as compensation. For example, social comparison theory is concerned with deliberate decision processes of external parties responsible for setting executive compensation (e.g., O’Reilly et al., 1988) or for setting target performance. The theory argued that board members – they are often times CEOs in other firms - use themselves as a referent point in their executive pay recommendations based on their own compensation. This social referent might provide important guidelines for decision makers who find they confront potentially risky situations. Executives might be aware that their situational conditions through the lens of social referent or relative comparison, which might have a significant impact on problem framing.

In addition, Kahneman and Tversky (1977) suggest employees change their framework when their total pay surpasses their expected income level. We might think industry or market pay indicates potential income level available outside the organization, and thus is a reasonable estimate of the executives’ expectation of income. Consequently I expect executives change their framework considering market or industry position of their total pay. Interestingly, there is empirical evidence that might support the concept of social referent. Jegers (1991) found a negative correlation between risk and return, stating that “troubled companies take more risk”. The results of content analysis of the annual reports of a

small number of firms within a same industry suggested the notion of risk seeking fits in very well behavioral decision theories stressing the role of reference in the analysis of risky choice. Building on previous literature, I propose the following propositions.

Proposition 1a: The lower the relative location to peer group in terms of performance, the more likely is the probability of a loss context

Proposition 1b: The higher the relative location to peer group in terms of performance, the more likely is the probability of a gain context

Proposition 2a: The lower the relative location to peer group in terms of compensation, the more likely is the probability of a loss context

Proposition 2b: The higher the relative location to peer group in terms of compensation, the more likely is the probability of a gain context

1.2 Compensation Design as Control Mechanism

This section focuses the design of compensation as control system in the way of alleviating both under-and overinvestment problems by changing perceived risk to executive wealth and, ultimately influence executive risk taking behavior. Ouchi & McGuire(1977) first raised the issue of control system in the decision context. More specifically, they conceptualize the organizational control system and argued that organizational control systems can foster perceptions of either high or low risk in a given situation because what they reward and punish focuses attention on different aspect of the decision-making process. Compensation system as a control mechanism is achieved by making some portion of agent compensation contingent upon satisfying performance targets specified in the contract from the agency framework (Welbourne et al., 1995). Therefore, combining Ouchi & McGuire (1977) and Sitkin & Pablo (1992), it is believed that compensation system as a control mechanism may influence change in perceived risk and, ultimately affect risk-taking behavior. By integrating behavioral decision theory with ideas from Ouchi & McGuire, it is suggested that different compensation designs can be used depending on if the context is a gain context or loss context. Put differently, compensation design might be moderating the relationship between problem framing and risk perception; it might lead to change the risk taking behavior. This leads to the next proposition.

Proposition 3: *Compensation design is moderating the relationship between problem framing and perceived risk to executive wealth*

Among many features of compensation design, my study will focus on “pay mix”. That is, the issue of choosing between different forms of pay. Prior compensation research has recognized three types of pay consequences: fixed pay (e.g., salary, perquisites), variable pay (e.g., bonuses, commissions, stock options, restricted stock awards, etc), and employment status (e.g., promotions and termination) (e.g., Wiseman & Gomez-Mejia, 1997). This distinction focuses on the “risk” which generally refers uncertainty of present and future executive wealth. Particularly, with regard to pay consequences, the key issues for compensation design concern the relative risk-bearing and incentive properties resulting from various pay schemes (Beatty & Zajac, 1994).

These above arguments raise the issue of compensation design as a situation in which the firm must choose between different forms of pay (fixed and variable) having different risk and payoff characteristics. For example, Goel

(1995) found that executives varied in risk propensity and that risk propensity interacted with governance design to influence firm performance. In particular, risk takers operating under strong incentive alignment schemes tended to take excessive risks that lowered firm performance. In contrast, risk-averse executives took the lowest level of risk and produced lower performance in gain context.

The issue of pay mix particularly concerns the allocation of pay between fixed- and variable forms. This issue related to executive risk-taking indicating the relative importance of the incentive and risk-bearing properties of variable pay (Beatty & Zajac, 1994). In one argument outcome-based pay schemes that link a portion of compensation to firm performance “reduce a risk-averse manager’s natural tendency to reject variance increasing projects” (Larcker, 1983). According to this view, agents are motivated to improve personal wealth, and when that wealth is strongly linked to the wealth of firm owners, executives will exhibit risk preferences similar to those of principals by selecting riskier strategic options (Coffee, 1988; Mehran, 1995). Conversely, when executive compensation is insulated from firm performance as executive gets paid in the form of salary, no incentive exists to accept risk, and executives should exhibit risk aversion when selecting among strategic options.

Wiseman and Gomez-Mejia (1998) suggest that different forms of pay may not be perfect substitute. They argue that executives may consider future base pay as part of current wealth while future variable pay may not. This results because variable pay is relatively contingent on uncertain factors occurring (e.g., gains in firm performance). Indeed, Balkin and Banister (1993) have noted that most executives attach little security to outcome based or variable compensation, suggesting that its loss represents less risk to wealth. Further, by assuming executives are “loss averse” rather than “risk averse”, such that executives attach more utility to avoiding loss of current wealth than attracting additional wealth, then executives should observe greater concern over the loss of base pay than the uncertainty of variable pay.

Gomez-Mejia and Wiseman (1998) also suggests that when a compensation scheme includes both base pay and variable pay and that pursuit of these targets put at risk future fixed (base) pay, executives necessarily are faced with a choice between safeguarding future base pay with conservative firm strategies that smooth income streams, create firm growth at the expense of profitability or pursuing contingent pay with riskier firm strategy that promise better firm performance but that also raise the probability that the target will not be met. Thus, they also argue that if executives count future base pay in perceived wealth, then loss-averse agents may seek to protect future base pay by opting for lower strategic risk on behalf of the firm, which, in turn, constrains firm performance.

Although the future variable pay is generally uncertain so that executives cannot predict the size of contingent pay awards, we should be aware of the fact that different forms of variable pay may carry different utilities. Stock options have interesting incentive properties. Although stock options represents only an estimate of their ultimate value since the value actually realized from those options, when they are eventually exercised subject to changing economic conditions and firm performance, stock option can be valued in present and is a priori specified contract. As opposed to this, bonuses contract do not guarantee any certain value or amount as well as the timing. In addition, payoff of the stock option is truncated, indicating there is no down-side risk of options. Unless executive exercise the options, stock options do not create risk bearing for the agent at all. Therefore, based on different payoffs and incentive properties, it is possible to design appropriate compensation form depending on gain or loss context. This leads the final proposition of efficacy of compensation design on risk-taking behavior.

It is clearly stated that problem-framing effects have implications for compensation design (Sitkin & Pablo, 1990; Sitkin & Weingart, 1995; Wiseman & Gomez-Mejia, 1998; Wiseman & Bromiley, 1996). Gain situations increase perceived risk to executive wealth since the executive has something to lose, and thus, in turn pursue the low-risk/low-return project at the sake of firm's profitability. To the extent that base/fixed pay is insulated from the threat of loss, option pay relative to bonus may be effective to encourage executive risk-taking. In contrast, loss situations decrease perceived risk to wealth and executives are more likely to take risk-seeking behavior such as taking excessive negative NPV projects that endanger the firm's fate as well as executive employment. Compensation could be designed in the way that discourages risk-seeking behavior. Since threat of termination is feasible in the scenario if he/she continues to fail, it might be effective that create "something to lose" when executive eventually lose employment, higher proportion of fixed salary might be effective to discourage executive risk-seeking behavior. This leads to the last propositions.

Proposition 4a: *Under the gain context, executives tend to exhibit risk-seeking behavior when they get compensated as lower level of base salary and higher proportion of stock option relative to bonus*

Proposition 4b: *Under the loss context, executives tend to exhibit risk-averse behavior when they get compensated as higher level of base salary relative to bonus-driven variable pay*

CONCLUSIONS

The main purpose of this paper is to examine how the construction of compensation schemes influence executives' risk taking. This study contribute to the literature by focusing on the understanding the process of executive risk taking in the decision context. Moreover, the paper is aiming at explaining both under-and overinvestment problem in organizations. By focusing on manager's behavioral biases under different contexts as theory suggests, this paper shows how these biases, in leading managers to believe their firms are in gain or loss situations, encourage under- and overinvestment in risky projects. As a part of ongoing theory development in this area, I also examine the determinants of problem framing and explore the possibility of introducing new element of "peer group performance" that affects the problem framing to explain executive risk taking. The model has implications for executive compensation design in order to promote an appropriate decision making in terms of choosing risky projects. I develop specific propositions that combine incentive alignment and the framing of problems to explain executive risk-taking behavior. This paper also explores the possibility that compensation schemes may reduce both under- and overinvestment problem in decision-making in different decision contexts. An appropriately and cautiously designed mixture of fixed and performance-related variable compensation may alleviate concerns but also mitigate both under-and overinvestment problems. I believe that the behavioral insights might provide opportunities for expanding the understanding of compensation effects on executive risk-taking behavior.

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